

5. EXCAVATION NARRATIVE

THE SITE WAS LOCATED on a high sandy bluff overlooking the confluence of Maidstone Branch and Fork Branch, the head streams of the Saint Jones River. When excavations began, the site was wooded, but formerly was cultivated.

On the east, the site dropped off sharply to the floodplain. Less than a half mile to the west is an enclosed freshwater feature referred to as a bay/basin feature or Delmarva bay. These features have been shown to be an important resource area for Archaic-period residents of the region, and could have been conveniently exploited by people living at the site we know as 7K-C-107, Blueberry Hill.

Although seriously disrupted by a railroad cut, sand pit operations, and dirt bike

riding, the surviving area of 7K-C-107 retained vertical and horizontal integrity.

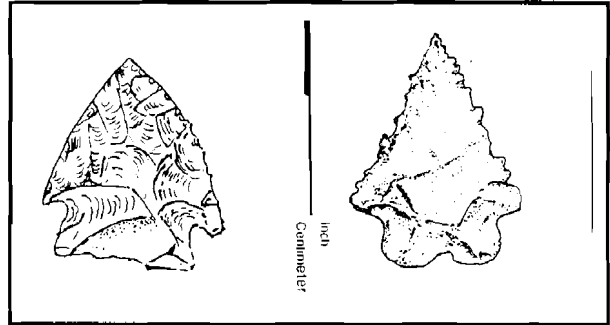


Figure 5
Diagnostic artifacts
 Palmer point (ER 97z), left, and bifurcate point, right, found during early phases of survey (actual size).

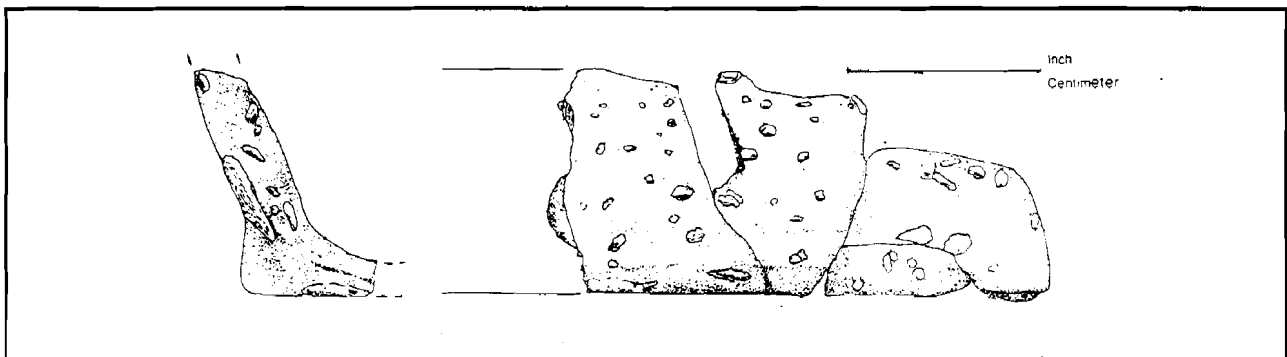


Figure 6
Marcey Creek sherds
 Flat base of a steatite-tempered ceramic pot from ER78, later identified as the marker for feature 4

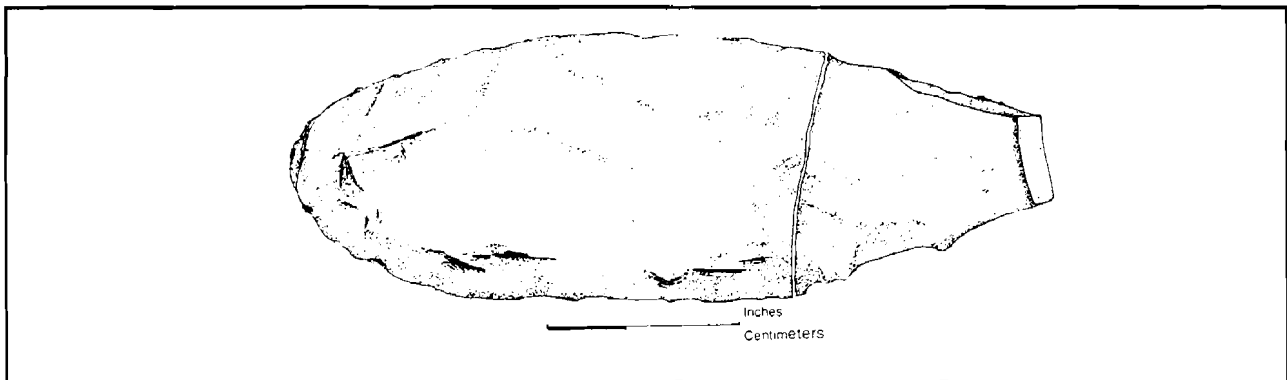


Figure 7
Quartz biface
 broken in manufacture, with the point yet unformed, from ER 82

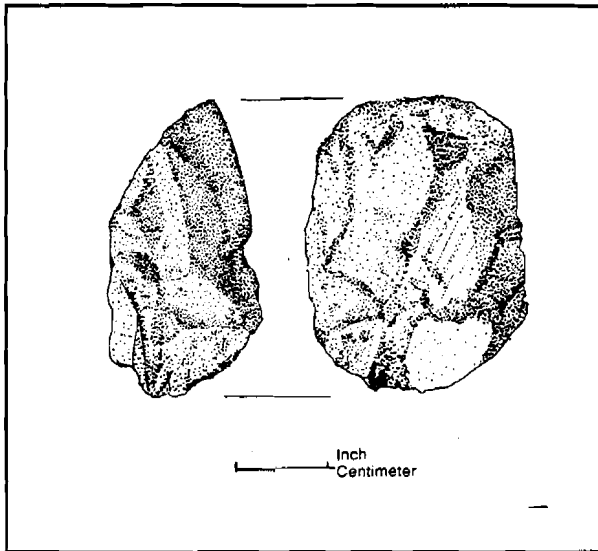


Figure 8

Quartz chopping tool

found in an exposed bank on the site.

This vertical integrity is significant because the intact deposits date to the two earliest and least understood periods of Delaware prehistory, the Paleo-Indian and Archaic periods.

Although temporal indicators are sparse in the assemblage recovered during Phase II tests, temporally diagnostic artifacts were found at critical points in the vertical profile.

Among these indicators were sherds of Marcey Creek pottery (FIGURE 6) at the base of the plowzone; bifurcate points were found less than 10 centimeters below the base of the plow zone, and a late-Paleo Palmer point at a depth of 65 centimeters. The

intervening B horizon appeared to be intact over most of the site, foreshadowing the discovery of stratified deposits within it. Below the level that yielded the Palmer point (FIGURE 7), cultural materials were recovered to a depth of nearly a meter below the current ground surface.

The site's claim to significance rests upon the fact that it contained stratified cultural material from the period of first human settlement to the beginning of pottery making, the least-understood time span in Delaware prehistory. It was therefore likely to yield information significant to our understanding of American prehistory, criterion D for listing in the National Register.

In connection with Phase I of this project, a test pit (ER 18-19) three feet square and 70 centimeters deep was excavated at Blueberry Hill. Analysis of recovered material revealed differences between the lithic contents of the various levels, inferring stratification, in spite of a lack of diagnostic artifacts (Heite and Blume 1992:55-58).

Any stratified site in Delaware is considered potentially eligible for the National Register of Historic Places, according to the state management plan. Since the first test showed that Blueberry Hill clearly was a candidate under Criterion D, Phase II examinations were undertaken to confirm extent, depth, and integrity of the remaining part of the site (Heite and Blume 1992: 69-74).

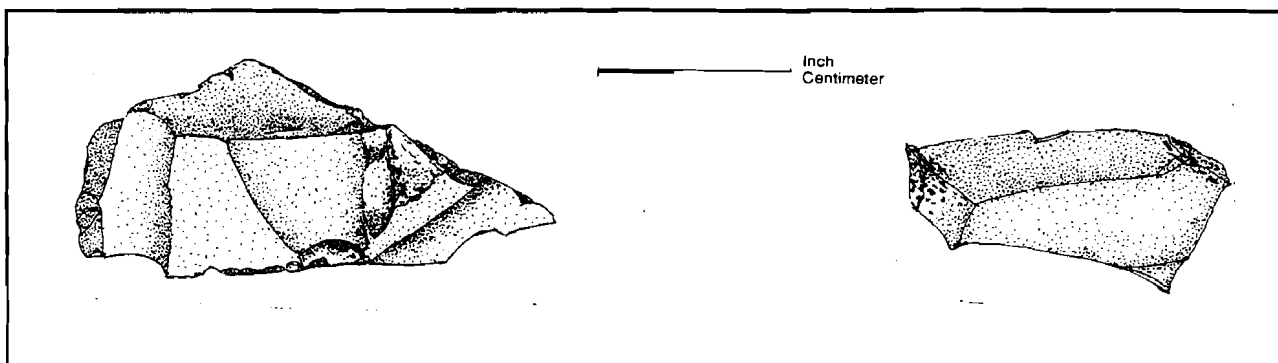


Figure 9

Jasper flakes

The specimen at left was used as a strike-a-light, and the one at the right was used as a graver. Both were found in the first test at Blueberry Hill, ER 19, near the bottom of the plowzone.

In view of the site's determined eligibility, a plan for a Phase III (data recovery) project was developed in consultation with the State Historic Preservation Officer.

Three objectives were set forth:

1. To determine the structure of the Paleo-Indian and Archaic occupations of the site.
2. To obtain information on the natural setting of the site during those time periods.
3. To recover a sample of the Woodland-period occupation of the site.

TASK LIST

Six tasks were identified for the data recovery project:

Task 1: About 30% of the remaining site area was to be totally excavated, following methods used in the Phase II project. These methods included excavation by five-centimeter levels in quartered meter-square units. All material was sifted through quarter-inch hardware cloth.

Task 2: Zone I was to be removed from the remaining part of the site after total excavation of the sample.

Task 3: Zones below the discarded plowzone were to be excavated by the same methods as in the original segments.

Task 4: One quadrant of each 5-centimeter level of each unit below Zone I was to be waterscreened and floated in order to recover small debitage and charred organic material.

Task 5: Environmental studies, including soil analysis, pollen studies, geomorphological studies of nearby bay/basins and/or floodplain below the site, analysis of carbonized vegetable material from water screening, blood residue analysis of tools, and radiocarbon dating, were to be conducted by appropriate sub-contractors.

Task 6: Cultural material recovered from the site was to be analysed and a final report was to be prepared. This is that report.

NOTATION SYSTEM

Throughout the Denney [Scarborough] Road survey project, each archaeological context was catalogued according to a modified version of the excavation register system (Noël Hume 1969: 89) adapted to the cultural resource environment. Every provenience in the project is assigned a number, called "ER," which translates into part of the ultimate project catalogue number in the Island Field collection.

All artifacts from the project are catalogued at the Island Field Museum under the accession number 90/23, to which is added the field-assigned number from the register.

Each findspot receives a whole number, in order of recovery. A findspot may be an entire field, an isolated cluster, a shovel test, a machine-cut swath, or a single excavated square. This "ER" number becomes the third element of the Island Field accession number. If the findspot is not stratified, artifacts are catalogued under the whole number. If the findspot is a stratified unit, the whole number identifies the unit's disturbed or unstratified, surface, components. Each natural or arbitrary layer, deposit, or feature within the unit receives a letter, assigned in sequence as excavated.

Thus, for example, an artifact marked 90/23/131XX is readily identified by reference to the register as being from the northeast quadrant of level 14 of unit 131, between 110 and 115 centimeters below grade, in the Pleistocene B horizon, archaeological zone 5.

The register begins as a loose-leaf notebook containing unit record sheets and field drawings. In the office, this information is entered in the computer file. Post-excavation processing of the register data is described in chapter 6.

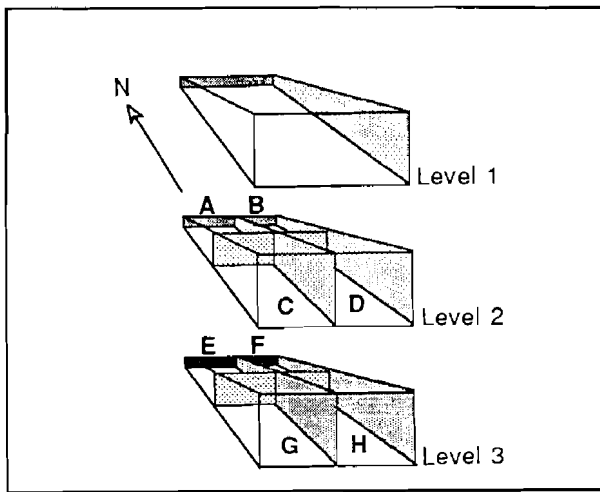


Figure 11
Diagram of a typical unit
 Illustrating the notation system
 for levels and quadrants

The complete excavation register describes each context and the artifacts found in it. Formal unit descriptions and artifact inventories are added to the field data, so that each unit entry is, in effect, a self-contained, modular, site report of a single context.

NATURAL SOIL ZONES

Each excavated cell was assigned to one of the five archaeological “zones” for interpretive purposes. These zones are congruent with horizons defined by Foss (1991).

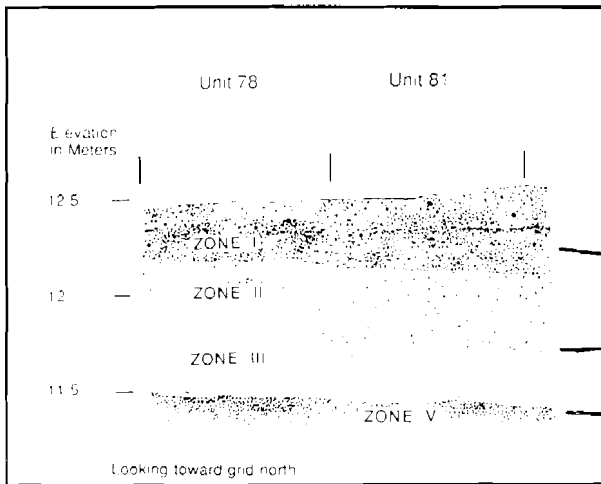


Figure 12
Natural zones
 Strata identified by Foss; arrows
 indicate corresponding zones on photo.

Zone I is the uppermost organic layer, and varies from 25 to 50 centimeters thick. Some æolian accumulation has taken place during the past 150 years. Woodland-period occupation is mostly confined to this layer.

Zone II is a weak B horizon, which has developed in an æolian soil. This zone extends from the base of the plow zone to approximately 70 centimeters below the modern surface. Marcey Creek ceramics were found at the interface between zones I and II; bifurcate points were found within 10 centimeters of this interface. A Palmer projectile point (90-23-79z) was found at the base of Zone II, indicating that this zone accumulated over a 3,500-year period between 9,500 and 6,000 years ago.

Zone III is a light-colored sand deposit which has not undergone significant soil development. This lack of development indicates that the deposit accumulated over a very short period of time, ending about 11,000 years ago. This layer generally was around 30 to 35 centimeters thick.

Zone IV is a discontinuous loamy sand B horizon that is up to 15 centimeters thick. This zone appears to indicate a stable Late Glacial surface.

Zone V is a well developed sandy loam B horizon that represents the Pleistocene surface. Excavation was carried into the top of this zone.



Plate 4
Typical unit
 Profile exposed in ER 78 and 71

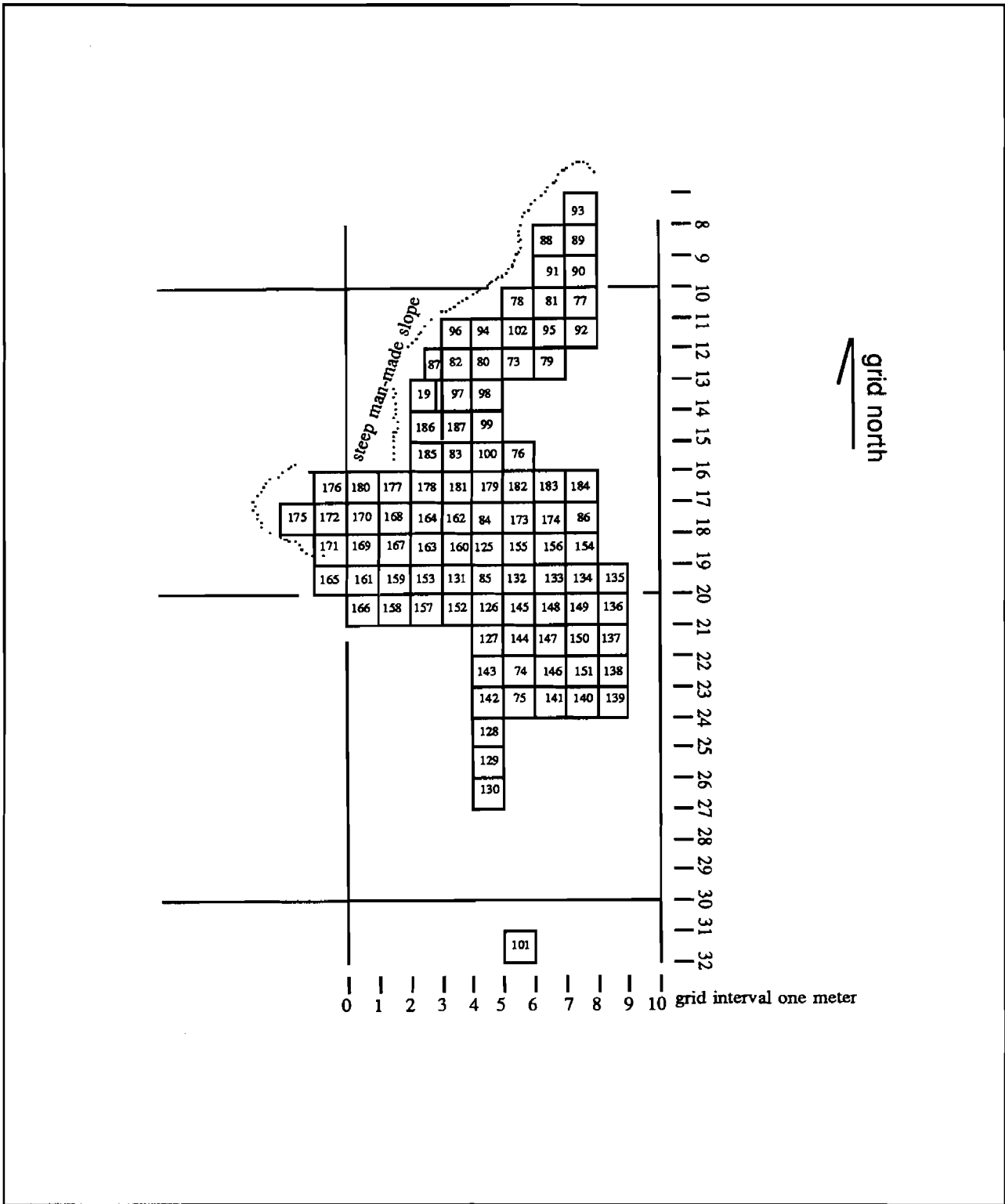


Figure 13
Layout of excavation units on the site
 This plan shows locations of units from Phase I, Phase II, and Phase III work on the site, 1990, 1991, and 1992

SITE LAYOUT AND CONTROL

A base line was drawn along the spine of the hill, roughly perpendicular to the center line of the proposed road. Because the proposed road runs generally east-west, this line was called *grid north*, even though, at this point, the proposed roadway will run north-south and the base line runs nearly due east-west (FIGURE 10).

The site was divided into meter squares, and a coordinate system was established with its zero point in the void of the gravel pit, a point thought to be beyond any possible archæological interest (FIGURE 13). The base line became the five-meter grid line on this system, and all units are in the southeast quadrant, allowing the site map grid coordinates to be read left to right and top to bottom. As it developed, a few units eventually were dug to the left of the zero line.

Register numbers were assigned to units in order of excavation, continuing the numbering sequence of the original Phase I survey (FIGURE 13). The first units, during the Phase I, consisted of test square numbered 19, and a register number 18, that was used as a catch-all to include chance finds, and artifacts found during the squaring-up for ER 19. Phase II test units were numbered 73 to 83. Phase III units were numbered 84 to 102 and 125 onward. Numbers 103-124 were used in Phase II tests at the White Marsh site, already reported (Heite and Blume 1992).

Vertical control was derived from Delaware Department of Transportation hubs. Elevations were converted into the metric system and all records were kept in metric dimensions.

Wherever possible, units were excavated by natural levels. The plowsoil was removed as a single level in each square. Below the plowzone, units were dug by arbitrary 5-centimeter levels, but reported by natural soil zone. After the plowsoil was removed from a unit, excavated levels were removed parallel to the plane of the B horizon (Zone II).

Elevations of unit corners were recorded at existing grade by transit surveys

before excavation began. Vertical control was maintained by reference to topsoil elevation, where it existed.

In two instances the top of the topsoil could not be used as a vertical reference. In bike tracks, the surface layer was fragmentary and irregular. In such cases, control was maintained by reference to nearby intact units and the damaged upper layers were excavated as level one; level two was the first intact layer.

PHASE II SUMMARY

When Phase II subsurface testing began, approximately 100 square meters of the site remained. Test excavations during the summer of 1991 included meter-square units, most of which were grouped at the higher "northern" end of the site, where pottery had been recovered in the first tests.

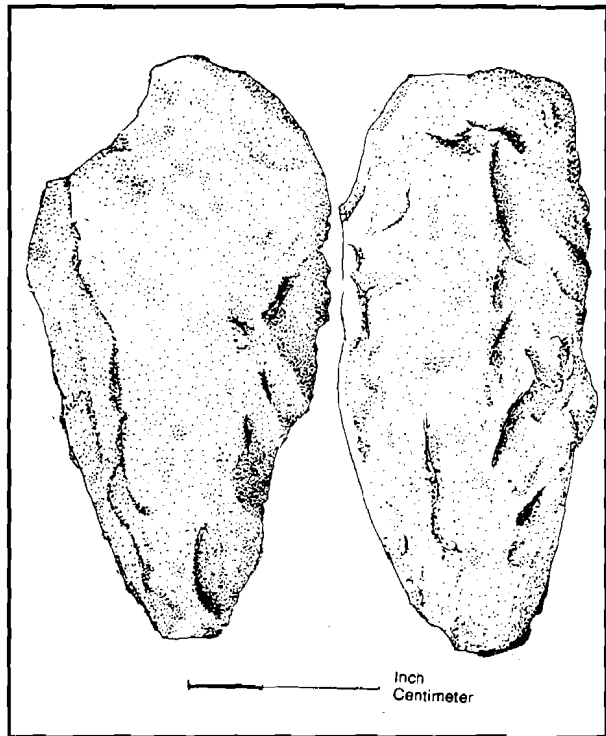


Figure 14

Quartz Bifaces

Found during the preliminary work
at Blueberry Hill, ER 18a

In this part of the site, plowsoil consisted of at least two layers. The topmost layer, sometimes as much as 30 or 40 centimeters thick, was a recent deposit, probably æolian accumulation from the

nearby fields. It had been cultivated, and contained most of the twentieth-century artifacts. Below this layer was an "old" plowsoil, more compact and sometimes containing the characteristic yellow clods brought up from below by cultivation. This layer covered the site fairly uniformly, normally 25 to 30 centimeters deep. In this old topsoil were found most of the prehistoric materials. Thus the "new" topsoil could have masked the underlying prehistoric site for anyone who might have casually walked the surface. In some areas, there were layers of thick humus or light sand atop the newer topsoil.

The plowsoil was taken off and sifted through a quarter-inch hardware cloth screen. Below this level, meter-square units were divided into quarters and excavated by 5-centimeter levels. Changes in the natural soil matrix were observed and recorded, in order to define natural layers.

The initial test, ER 18 and 19, had been unwittingly placed next to what appears to be a hearth, later described as Feature 1. The existence of an activity area around this hearth helps to explain why the initial test yielded such a rich collection of artifacts.

In hindsight, it became apparent that quartz bifaces found in the squaring-up (FIGURE 14) probably were associated with this feature. They were found in association with a fire-cracked rock about 30 centimeters below the surface, at the base of the plowsoil, which happens to be the level of the nearby feature 1.

When ER 82 was opened, two pieces of a similar quartz biface (FIGURE 7) were found in the lower part of the topsoil. This biface had been broken in manufacture, and the parts were still lying close together, indicating a low level of soil disturbance in the bottom of the "plowzone" layer. The relatively good condition of archaeological contexts in this lowest plowzone was noted, and prompted some inquiry into the actual effect of cultivation on plowzone sites.

Just below plow depth in ER 82 a pattern of fire-cracked rocks revealed the existence of a hearth, later designated Feature 1. This feature extended beyond the unit boundaries, toward the dirt bike track. A half-unit, ER 87, was opened on the edge of

the cut to recover the rest of the hearth (FIGURE 15).

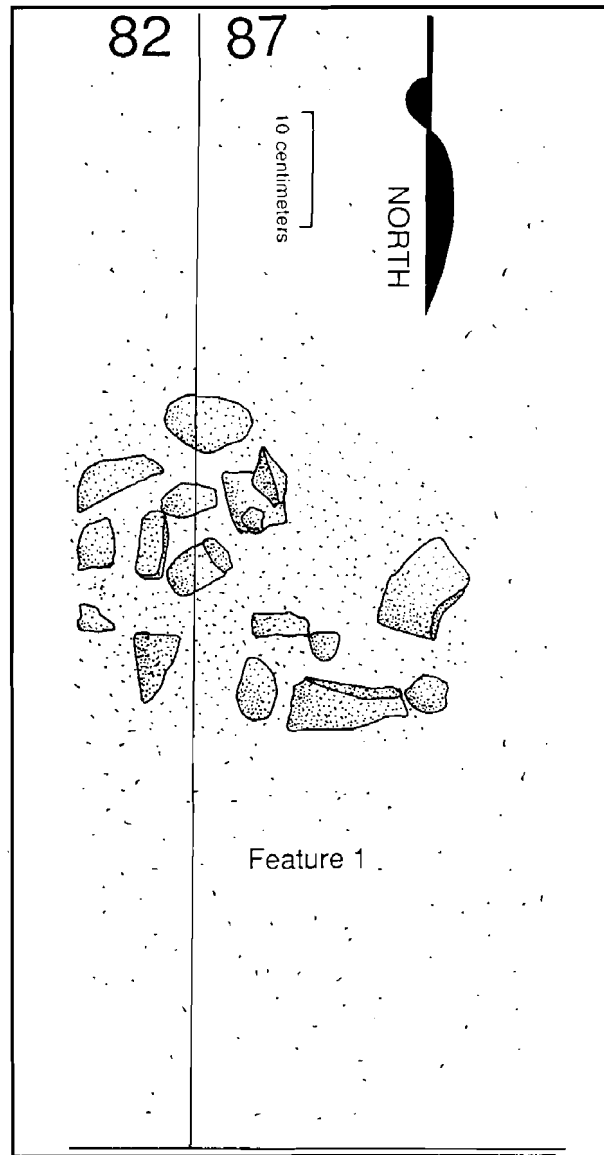


Figure 15

Plan of Feature 1

Diagram of hearth found just below the plowzone, near the original test locus

Phase II research design called for excavation of approximately ten test units down to a light-colored sand, thought to be a C horizon, which had been identified at 70 centimeters in the first test pit. This layer was hard sand with lamellae, indicating a very old deposit. It had been assumed that the deposit above this layer was the bottom of the cultural material, below which nothing would be found. Lying on top of this layer, at a depth of 65 centimeters in ER 79, was a

Palmer point (FIGURE 6), a diagnostic late Paleo-Indian artifact.

Foss visited the site during Phase II tests and bored through the light-colored sand. He identified a reddish soil horizon at the base of the deposit which was probably indicative of a Late Glacial (15,000 BC to 8,000 BC) land surface.

Foss identified the light-colored sand layer as an æolian deposit which accumulated above this Late Glacial landscape over a comparatively short period of time (FIGURE 12), apparently during the Paleo period. This meant that an undisturbed and stratigraphically distinct Paleo-Indian component might also be present.

The new information about soil chronology caused a revision of research emphasis and field strategy. Whereas earlier attention had been focused on the Woodland site, in and near the plowzone, the research emphasis now shifted to the possibility of a deeper site, far below the level at which the Palmer point was found.

Since Phase II units had been dug only to the top of the light-colored Zone III sand, it was necessary to go back and dig them to the depth prescribed by Foss. The units were deepened, and all future units were taken through the reddish Zone IV Late Glacial layer.

Each unit was excavated by quartered five-centimeter layers down to a red clayey Pleistocene layer, Zone V, which was frequently a meter or more below grade.

PHASE III NARRATIVE

Phase III excavation was functionally an extension of Phase II work.

Recording was standardized (FIGURE 12). In each unit, the whole-number designation referred to the topmost plowsoil, normally about 35 centimeters deep. Thereafter, each five-centimeter level was divided into quarters, so that level 2 normally contained quadrants labelled A, B, C, D, and level 3 contained cells labelled E, F, G, H.

After Phase III work began, the southeast quadrant of each square was designated for waterscreening. These sample

cells are lettered D, H, L, P, T, X, BB, FF, JJ, NN, RR, and so on, as deep as the unit may go.

The data recovery plan, based upon Phase II findings, called for concentration on the stratified lower levels. Some units were excavated in areas of extreme surface disturbance, which normally might not have been studied. These units contained well-preserved deep layers, however.

Much of the south end of the site was stripped of its plowsoil and elevations were taken by transit at the top of Zone II. In such areas, records were kept with reference to the Zone I-Zone II interface.



Plate 5

Stump

Stumps like this, along the former field edge, massively disrupted the upper layers, but had no effect on deeply-buried Paleo strata. This particular stump stood over features 2/3, and intruded somewhat into them.

COMPLETE EXCAVATION SAMPLE

The first step in the data recovery procedure was to completely excavate a sample of units, distributed throughout the site. Phase I and Phase II units had been concentrated at the summit of the hill, where pottery had been found in the plowzone. At the suggestion of the State Historic Preservation Officer, a sample of completely-excavated units was extended downhill, away from the apparent center of the site (FIGURE 18).

In the complete excavation sample, plowsoil was excavated and sifted as a single unit. Below the plowzone, units were excavated by five-centimeter layers and quartered. Pottery concentrations dropped off in the downhill units with their distance from

the original test loci, indicating that the Woodland-period site was largely confined to the uphill area.

South of the 19-meter line, certain units were identified for complete excavation (units 126-130). After these units' topsoil had been recovered, work on them was suspended, pending removal of topsoil from nearby units in the south part of the site.

REMOVAL OF ZONE 1

Topsoil from the remaining units was removed and discarded. Stripping between grid lines 19 and 24 south created a block of bare subsoil containing approximately 26 square meters. This area was cleared and photographed. Features were plotted (FIGURE 17, PLATE 5).

Plowscars and animal burrows were apparent in the surface. Plowscars extended to the edge of the hill, and ran parallel to the north-south grid lines. Since scars near the edge of the hill were a half-meter or more below existing grade, it was obvious that most of the plowzone in this area has been deposited since cultivation began.

During initial mapping of the site, an apparent recent field edge was identified, on the basis of large trees in a line, roughly along the six-meter grid line, a meter east of the original base line (FIGURE 16). This line proved to be a subsurface demarcation as well. West of the field edge the soil was marked with irregular brown stains typical of animal burrows. East of the field edge the

plowscars were less disturbed and animal burrows were sparse (FIGURE 17).

Animal burrows typically are found just inside the edge of open fields. A less intense collection of burrows was identified along grid line 8, near the crest, possibly indicating an earlier location of the field edge.

This evidence indicated that the field was cultivated, after introduction of the mouldboard plow, practically to the edge of the hill. Some time thereafter, the field margin migrated out to the location identified on the basis of the existing field-edge trees. Since animal burrows were much more extensive in this later field edge, one can conclude that the edge was moved quite early in the cultivation history of the site.

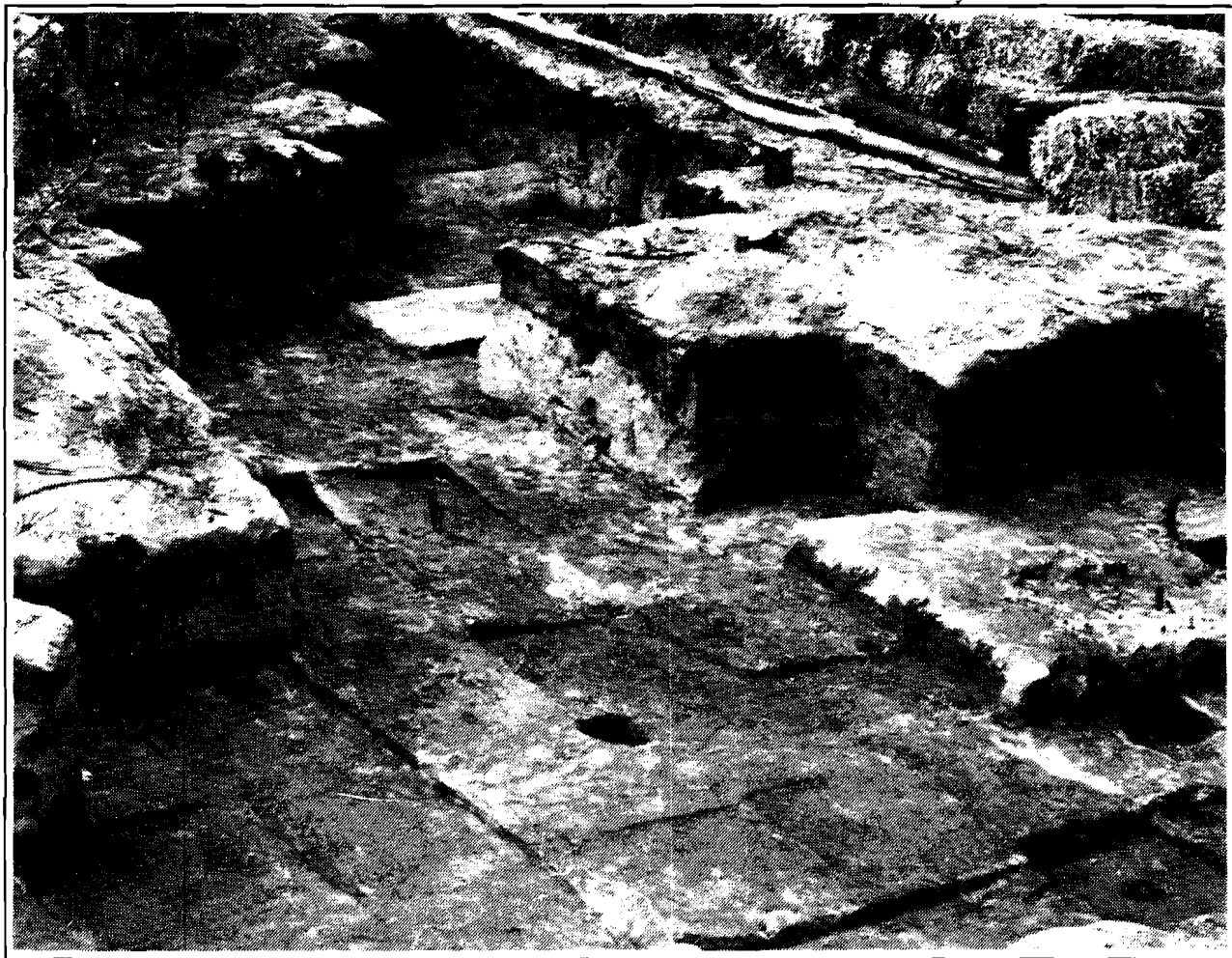
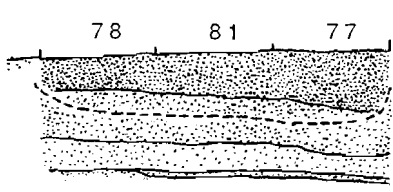
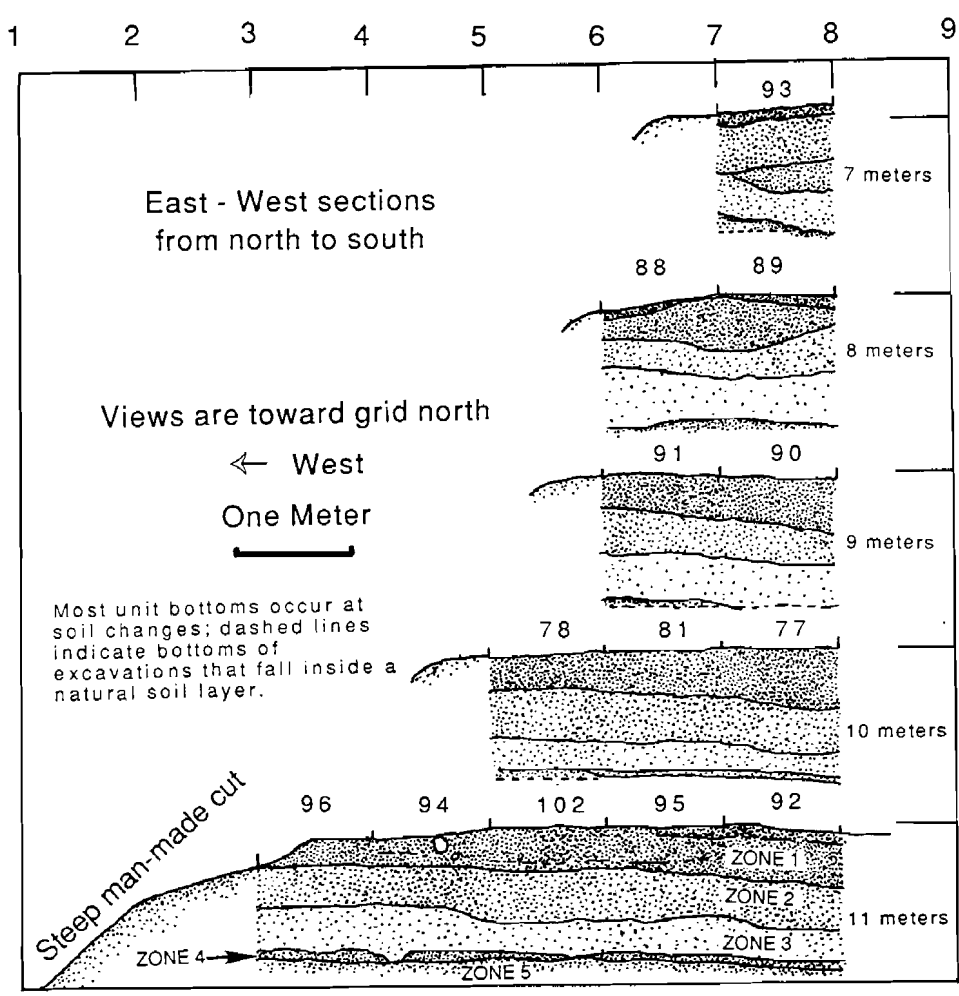


Plate 7

Overall view of the site

View of the center and north sections of the site at the end of excavations, in the spring of 1992, from grid south. Compare with Plate 8, page 39, taken at the same time.



Detail of the ten-meter profile
Dashed line indicates extent of Feature 4, as interpreted from Marcey Creek sherds (Figure 6)

Figure 20
Profile of sections along the 7, 8, 9, 10, and 11 meter grid lines
Inset at bottom shows inferred profile of Feature 4, based on sherd distribution.

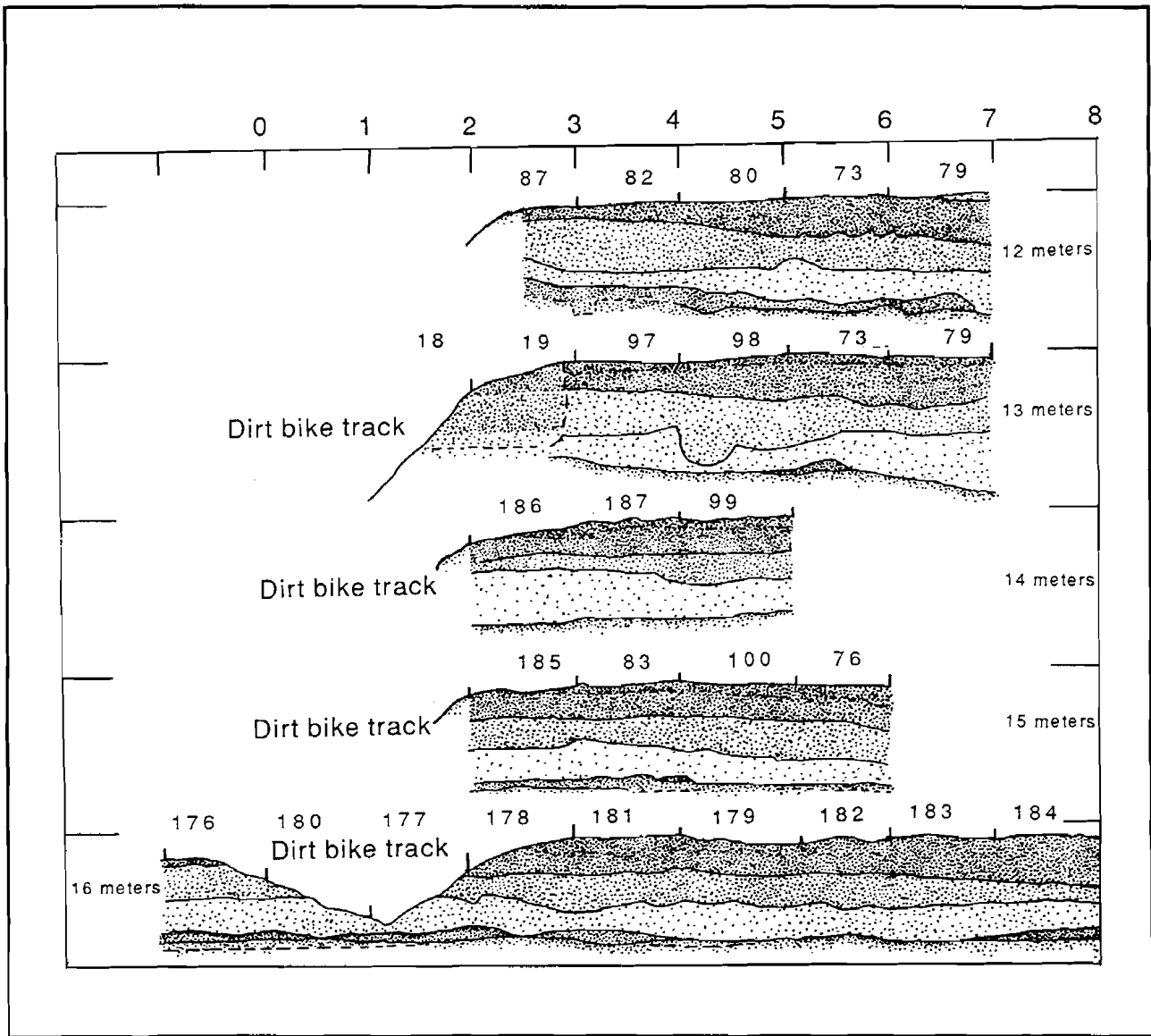


Figure 21
Profile of sections along the 12, 13, 14, 15, and 16 meter grid lines

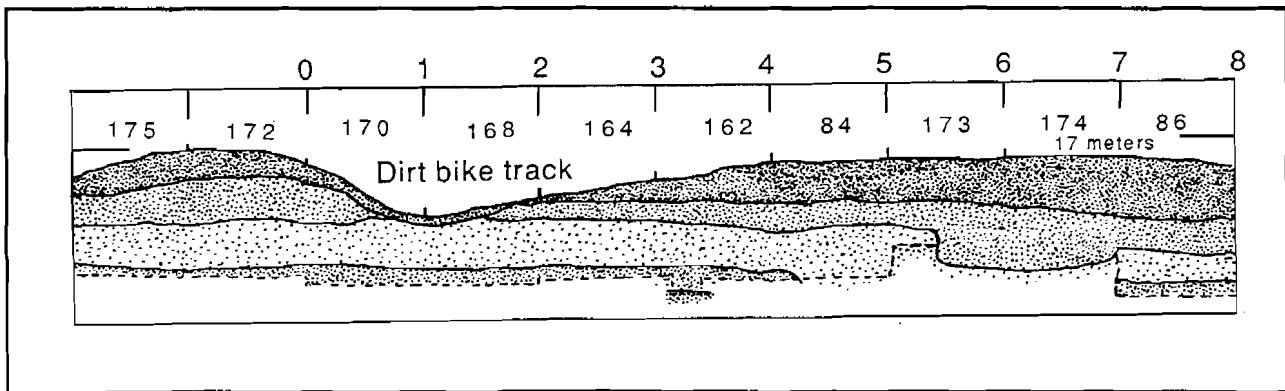


Figure 22
Profile of sections along the 17 meter grid line
 Note feature 3 between grid lines 5 and 7.

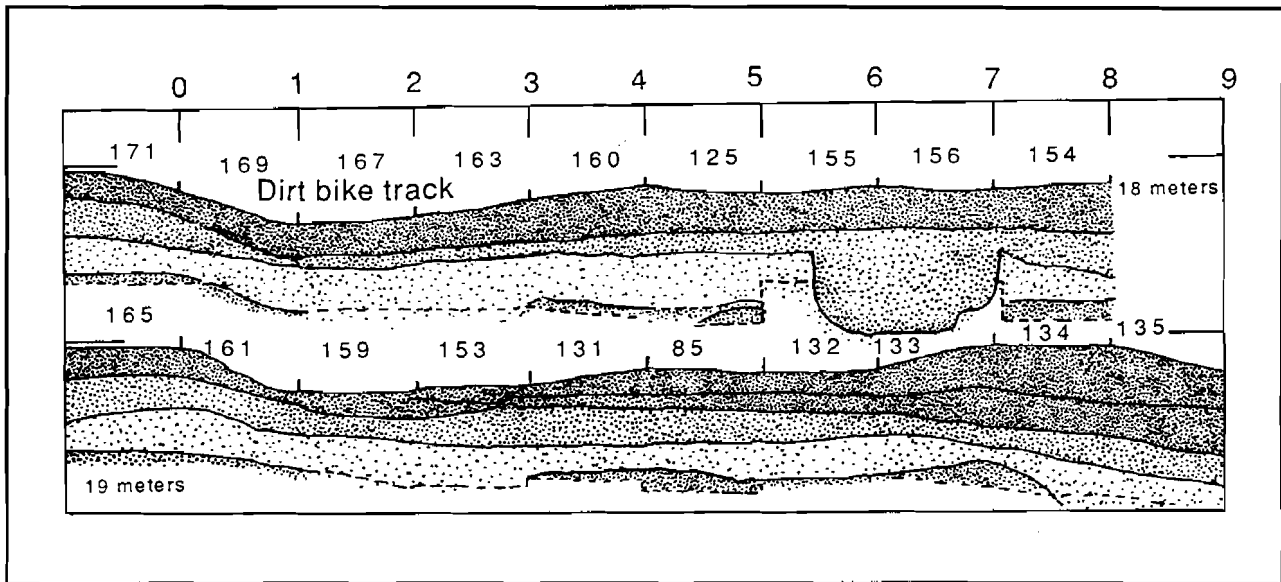


Figure 23
Profile of sections along the 18 and 19 meter grid lines
 Note profile of feature 2 on the 18-meter section.

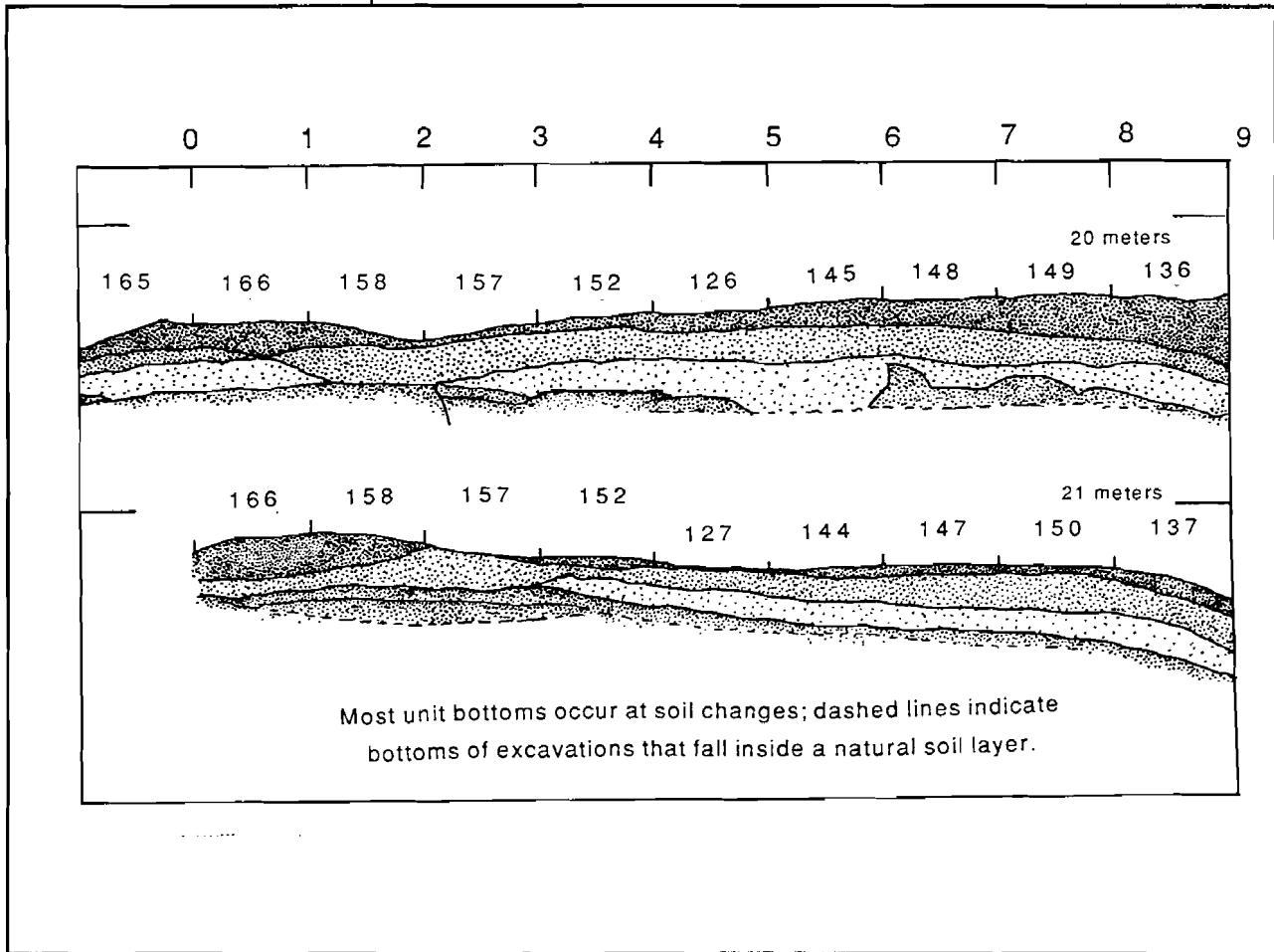


Figure 24
Profile of sections along the 20 and 21 meter grid lines

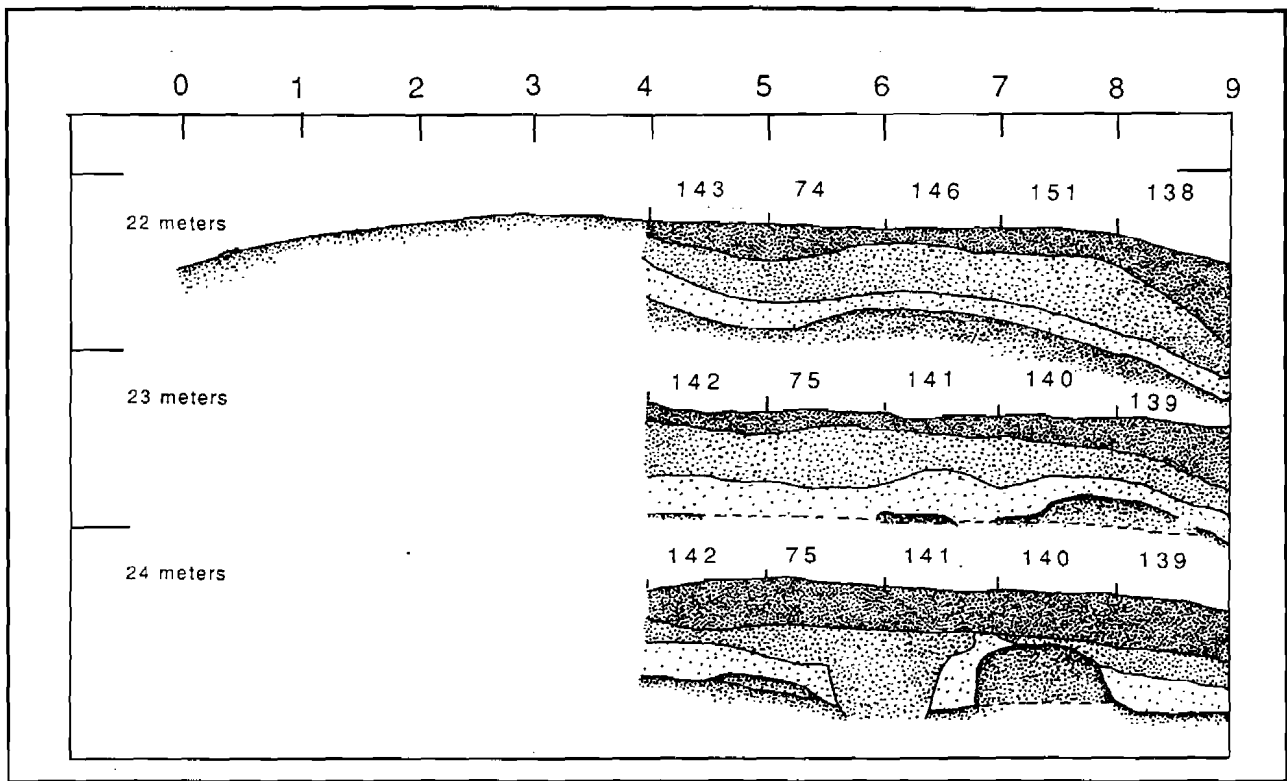


Figure 25
Profile of sections along the 22, 23, and 24 meter grid lines

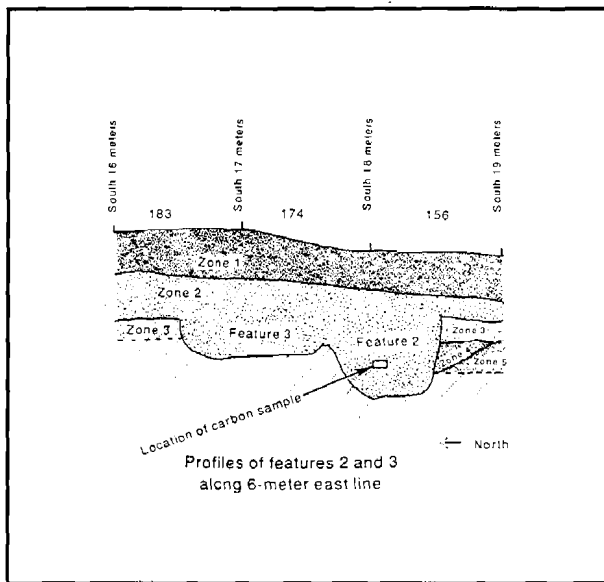


Figure 26
Profile of features 2 and 3
 Shown looking eastward along the 6-meter line,
 showing the location of carbon sample, which
 yielded a date of 2990 BP \pm 60 [Beta 53884].

Moreover, at least two-thirds of the Zone I soil in the eastern part of the site was deposited after plowing had ceased here, since even the deepest moldboard plow in common use penetrates only about 35 centimeters.

Zone II, the B horizon, lay evenly distributed under the plowsoil across most of the site. The interface between zones II and III was likewise fairly even, but the Zone IV and V levels were irregular, marked by gullies and mounds. In particular, a pronounced "gully" at the south end of the site appeared from anecdotal observation to be an early activity focus.

Some of these irregularities were undoubtedly natural features, but some could have been man-made. The "invisible" cultural features would reveal themselves after analysis of artifact distributions.



Plate 8

Overall view of the site from grid south

View of the site at the end of excavations, in the spring of 1992, from a bucket lift. The units are a meter wide. Compare with Plate 6